

IN THE CLAIMS:

Please cancel claims 1-21 and add new claims 22-33 as follows:

22. A method for current recirculation in first and second electromechanical valves assemblies disposed in an internal combustion engine, said first electromechanical valve assembly having first and second stator phases selectively connected between a first node and ground, said second electromechanical valve assembly having third and fourth stator phases selectively connected between said first node and ground, said method comprising:

generating a braking current in said first and second stator phases of said first electromechanical valve assembly; and,

connecting said third and fourth stator phases of said second electromechanical valve assembly to said first node to direct said braking current into said third and fourth stator phases as an accelerating current.

23. The method of claim 22 wherein said first electromechanical valve assembly includes an exhaust valve controlling fluid communication through a line connected with a cylinder of said engine.

24. The method of claim 23 wherein said braking current is generated when moving said exhaust valve in said first electromechanical valve assembly toward a closed position.

25. The method of claim 22 wherein said second electromechanical valve assembly includes an intake valve controlling fluid communication through a line connected with a cylinder of said engine.

26. The method of claim 25 wherein said accelerating current is utilized to move said intake valve in said second electromechanical valve assembly toward an open position.

27. A method for current recirculation in first and second electromechanical valves assemblies disposed in an internal combustion engine, said first electromechanical valve assembly having first and second stator phases selectively connected between a first node and ground, said second electromechanical valve assembly having third and fourth stator phases selectively connected between said first node and ground, said method comprising:

generating a braking current in said first and second stator phases of said first electromechanical valve assembly to slow down movement of an exhaust valve in said first electromechanical valve assembly toward a closed position; and,

connecting said third and fourth stator phases of said second electromechanical valve assembly to said first node to direct said braking current into said third and fourth stator phases as an accelerating current to move an intake valve in said second electromechanical valve assembly toward an open position.

28. A system for controlling current recirculation in first and second electromechanical valves assemblies disposed in an internal combustion engine, said first electromechanical valve assembly having first and second stator phases selectively connected between a first node and ground, said second electromechanical valve assembly having third and fourth stator phases selectively connected between said first node and ground, said system comprising:

a first commutation circuit that controls current flow in said first and second stator phases of said first electromechanical valve assembly;

a second commutation circuit that controls current flow in said third and fourth stator phases of said second electromechanical valve assembly; and,

a valve controller operably connected to said first and second commutation circuits, said controller configured to connect said third and fourth stator phases of said second electromechanical valve assembly to said first node to direct a braking current generated in said first and second stator phases into said third and fourth stator phases as an accelerating current.

29. The system of claim 28 wherein said first electromechanical valve assembly includes an exhaust valve controlling fluid communication through a line connected with a cylinder of said engine.

30. The system of claim 29 wherein said braking current is generated when said exhaust valve in said first electromechanical valve assembly is moving toward a closed position.

31. The system of claim 28 wherein said second electromechanical valve assembly includes an intake valve controlling fluid communication through a line connected with a cylinder of said engine.

32. The system of claim 31 wherein said accelerating current is generated to move said intake valve in said second electromechanical valve assembly toward an open position.

33. An article of manufacture, comprising:

a computer storage medium having a computer program encoded therein for controlling current recirculation in first and second electromechanical valves assemblies disposed in an internal combustion engine, said first electromechanical valve assembly having first and second stator phases selectively connected between a first node and ground, said second electromechanical valve assembly having third and fourth stator phases selectively connected between said first node and ground, said computer storage medium comprising:

code for generating a braking current in said first and second stator phases of said first electromechanical valve assembly; and,

code for connecting said third and fourth stator phases of said second electromechanical valve assembly to said first node to direct said braking current into said third and fourth stator phases as an accelerating current.